

# 2025 SD STEAM Educators Conference

## Hands on Geometry with Quilts

Imathgination LLC

Yana Mohanty

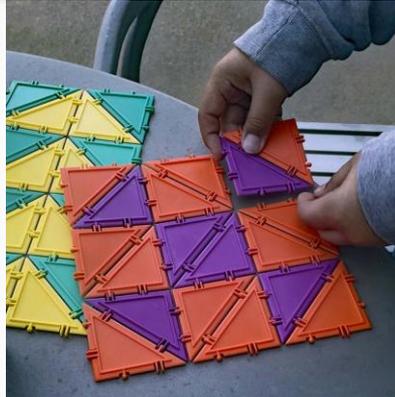


Generation  
STEAM



- Education:
  - Ph. D. in Mathematics, U.C.S.D.
  - M.S. in Electrical Engineering, University of MA, Amherst
  - B.S. in Electrical Engineering, U.C.L.A.
- Organization: Imathgination LLC
- Favorite quote: *Mathematics is a part of physics. Physics is an experimental science, a part of natural science. Mathematics is the part of physics where experiments are cheap. –V.I. Arnold.*
- Outside Interests & Fun Facts
  - I was born in Odessa, Ukraine
  - I love origami and other paper crafts.

# Hands on Geometry with Quilts: Summary



- **Provider Name:** Imathgination LLC
- **Workshop Type:** STEAM in a Box | STEAM Series
- **Brief Description:**

Learn geometry by creating quilt patterns and assembling them into larger patterns or 3D solids.
- **Intended Audience:**
  - **Grades:** Elementary, Middle, High School, etc.
  - **Program Types:** School-Day Programs, After-School Programs, summer camps.

# Hands on Geometry with Quilts

Meet your medium!



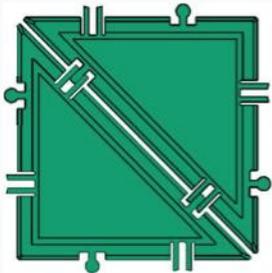
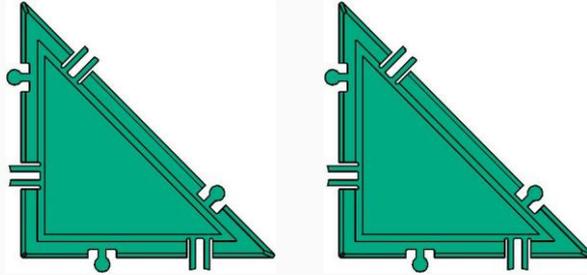
45-45-90 triangle



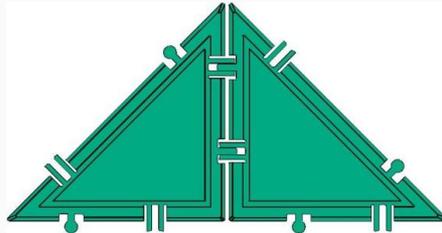
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# Warm-up Activity 1

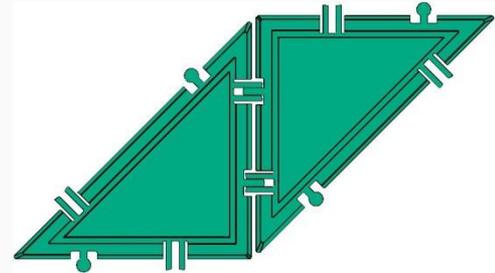
What shapes can you create by snapping together two of these triangles?



Square



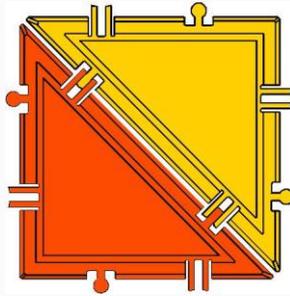
Right isosceles triangle



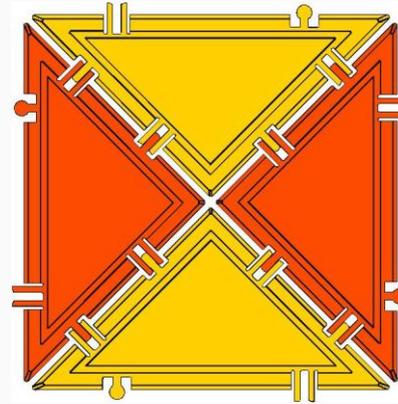
Parallelogram

# Warm-up Activity 2

1. Take 2 bags of tiles in 2 different colors of your choice.
2. Use both colors to make squares in 2 different sizes:
  - a. 2-tile square
  - b. 4-tile square



To quilters these are: **Half-square block (HST)**



**Quarter-square block (QST)**

# Examples of quilts based on HST



Karlene Falker, Michigan



Irena Swanson Ph.D., Indiana  
Math professor at Purdue University

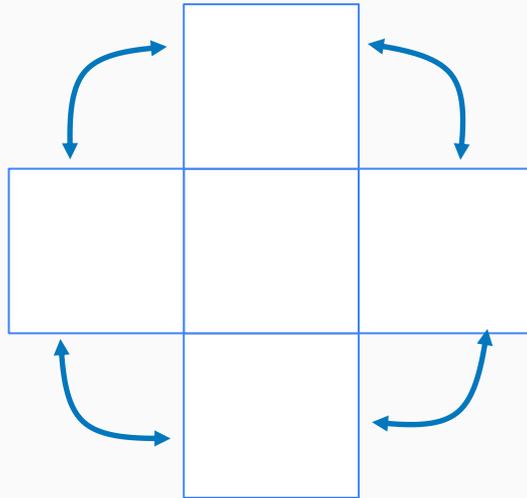
# Example of a quilt based on QST



Gees Bend, Alabama

# Joining the blocks

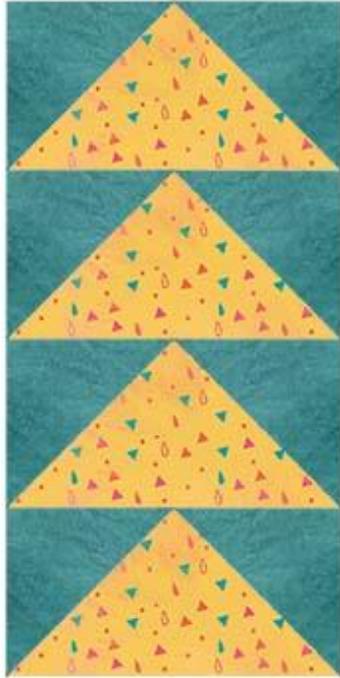
With Geometiles, you can join the blocks to make a 2D surface or a cube.



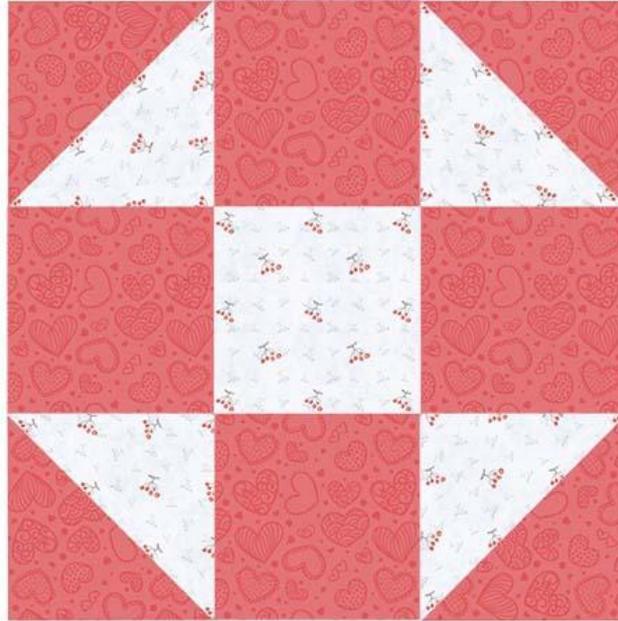
**Make the lid separately,  
then attach.**

Make a cube with HST sides and another one with QST sides

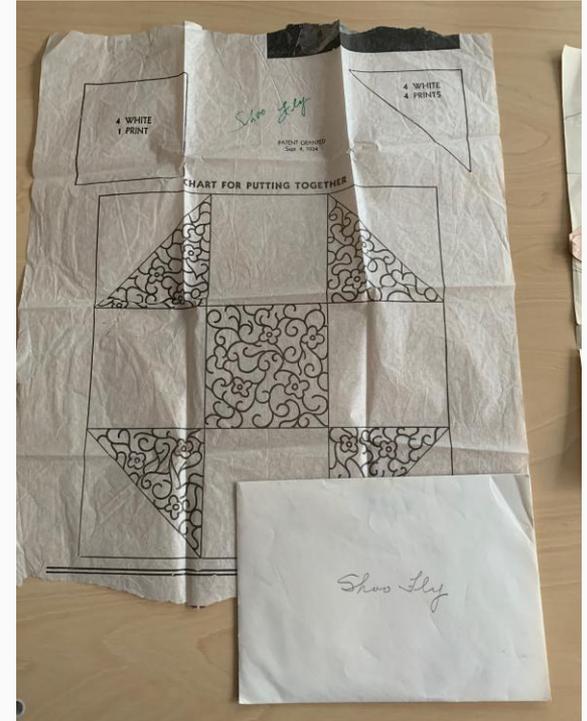
# Let's make some more classic quilt blocks



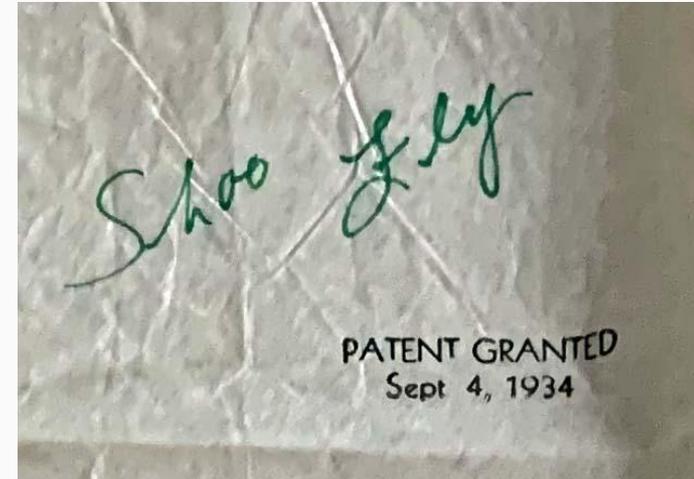
Flying geese



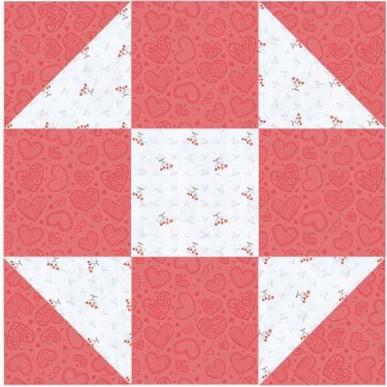
Shoo fly



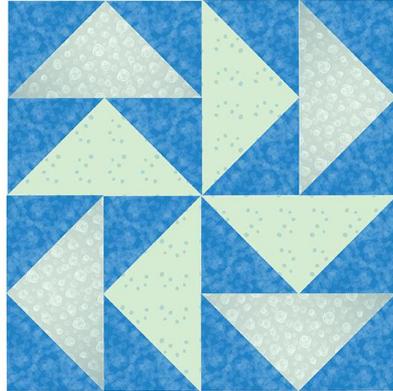
Shoo fly 1934 pattern



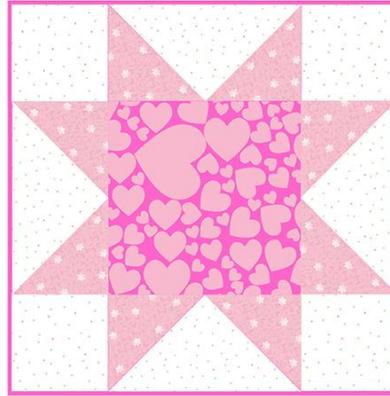
# Pick a pattern & join in a larger quilt or cube



Shoo fly



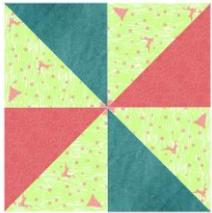
Dutchman's puzzle



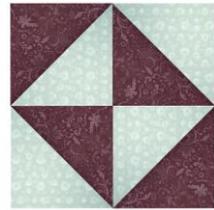
Sawtooth Star



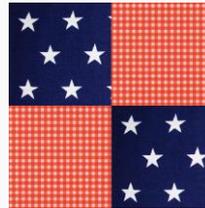
Card trick



Pinwheel



Broken  
dishes



Four  
patch



Laura Coia  
[sewveryeasy.com](http://sewveryeasy.com)

# So much more to explore!



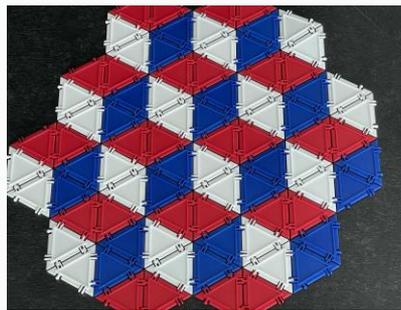
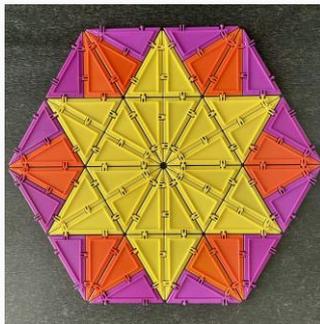
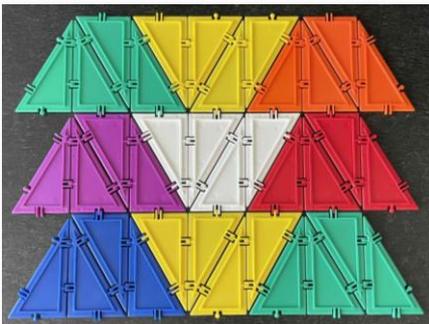
Charm quilt at Mingei Museum



Night sky by Jaybird Quilts



Tumbling Blocks by Karlene Falker



# Stay in touch!



[yana@imathgination.com](mailto:yana@imathgination.com)

[www.geometiles.com](http://www.geometiles.com)

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# HANDS ON GEOMETRY WITH QUILTS

## 2025 SDSE: Activity Close

Q & A



Survey



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